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EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/658,079

Applicant(s)

JANGBARWALA, JUZER

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-9,12-18,22-26 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-9,12-18,22-26 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1, 25-26 and 29 are amended in view of applicant's amendment filed 27 December 2007. Claims 2, 4, 10-11, 19-21, 27-28 and 30-33 are canceled in view of the amendment. Therefore, claims 1, 3, 5-9, 12-18, 22-26 and 29 are currently under examination.

Status of Previous Rejections

2. The rejections of claims 1, 3-26, 29-30 and 32, under 35 U.S.C. 112, first paragraph, are withdrawn in view of applicant's claim amendments and cancellations filed 27 December 2007.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 5-7, 13-15, 17-18, 23, 25-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buck US 6,284,201 B1(Buck) in view of Cai et al. US 2003/0139288 A1(Cai).

Buck teaches the use of a heat-resistant fibrous material supported catalyst in a catalytic reaction of internal combustion engines(abstract). Buck also teaches that the heat-resistant fibrous material is electrically conductive carbon fiber(col. 2 lines 19-23, col. 3 lines 9-19, col. 10 lines 26-29) or active carbon fiber (col. 11 lines 27-29, col. 6

Art Unit: 1742

lines 63-67) and the catalyst is Pt or Pd (col. 9 lines 33-34). Buck also teaches that the catalyst support can be coated by SiO_2 (col. 3 lines 20-24).

However, Buck does not explicitly teach that the carbonaceous material comprises carbon fibers and carbon nanotubes as claimed.

Cai teaches dispersing catalyst such as Pt, CuO and ZnO, on the surface of a catalyst carrier such as Al_2O_3 which is applied onto suitable support materials such as carbon fibers and carbon nanotubes (abstract, paragraphs [0011-0012, 0017-0018, 0059]).

Regarding claims 1, 3, 5-7, 17 and 29, it would have been obvious to one of ordinary skill in the art to have incorporated a mixture of carbon fibers and carbon nanotubes as suitable support material in the process as taught by Buck since Cai teaches that both carbon fiber and carbon nanotubes are suitable support materials for the catalysts such as Pt. It is also well settled that "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See MPEP 2144.06.

In addition, Buck inherently teaches the claimed "providing said catalyst on a support of electrically conductive carbonaceous material". Buck further teaches the claimed "supplying an electric current to said support such that the support passes said electric current to said catalyst" (col. 10 lines 52-64). Since carbonaceous support of

Art Unit: 1742

Buck in view of Cai is electrically conductive and heat resistant, the examiner concludes that the claimed electric current resistive heating to a temperature effective to activate the catalyst would also take place in the electrochemical reaction process of Buck. The SiO₂ coating as taught by Buck reads on the claimed catalyst carrier.

Regarding claim 18, Buck further teaches that the carbon fiber is folded or rolled (Figs. 9-10, col. 7 lines 44-59). Since the carbon fiber and carbon nanotube containing material of Buck in view of Cai provides support to the catalyst, the claimed reaction being carried out by passing chemical reactants between the carbon fiber folds or rolls would also take place in the process of Buck in view of Cai.

Regarding claims 13-15, even though Buck in view of Cai do not explicitly teach the claimed heat conductivity, electrical resistivity and dielectric constant, one of ordinary skill in the art would have found it obvious that the electrically conductive carbon fiber and carbon nanotube containing catalyst support of Buck in view of Cai possess the same heat conductivity, electrical resistivity and dielectric constant as claimed since heat conductivity, electrical resistivity and dielectric constant are inherent properties of the electrically conductive carbonaceous material as claimed.

Regarding claim 23, Buck further teaches that the catalyst temperature is increased to approximately 800°C (col. 10 lines 16-18) and carbon fiber support permits internal heating of the catalyst body to be performed (col. 10 lines 26-30). Therefore, the examiner concludes that the Buck in view of Cai teach electrically heating the catalyst to approximately 800°C, which reads on the catalyst temperature limitation.

Art Unit: 1742

Regarding claims 25-26, Buck's teaching further implies that the carbon fiber catalyst support is non-woven (col. 6 lines 15-17). Therefore, even though Buck does not explicitly teach the claimed non-woven carbon fiber plug, one of ordinary skill in the art would have found the claimed non-woven carbon fiber plug obvious since non-woven carbon fiber plug is a variation of non-woven carbon fiber as taught by Buck. It is well settled that the shape or configuration of the claimed object is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed object was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) . See MPEP 2144.04. Therefore, the combined teaching of Buck in view of Cai meets the limitation of the claimed non-woven carbon fiber plug with carbon nanofibers(i.e. nanotubes) as claimed.

5. Claims 8-9, 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buck in view of Cai, and further in view of Abe US 6,641,795 B2(Abe).

The teachings of Buck in view of Cai are discussed in paragraph 4 above. However, Buck in view of Cai do not explicitly teach the claimed carrier pore size or claimed carrier surface area.

Abe teaches catalyst, such as Pd, Pt, Co and Ni, are carried by suitable carriers such as Al₂O₃, SiO₂, TiO₂, ZrO₂, MgO, etc. (col. 12 lines 28-67). Abe further teaches that the catalyst carrier has a surface area in the range of 5-300m²/g(col. 12 lines 47-61).

Art Unit: 1742

Regarding claims 8-9, it would have been obvious to one of ordinary skill in the art to have incorporated the catalyst carriers of Abe having a surface area of $5\text{-}300\text{m}^2/\text{g}$ into the catalyst carrier of Buck in view of Cai in order to enhance the activity and durability as taught by Abe(col. 12 lines 42-46 and 56-59). Therefore, the surface area of Buck in view of Cai and Abe reads on the claimed surface area of $1\text{-}1000\text{m}^2/\text{g}$. Even though Buck in view of Cai and Abe do not explicitly teach the claimed carrier pore diameter, one of ordinary skill in the art would have found the claimed carrier pore diameter obvious since Buck in view of Cai and Abe teach the same catalyst carrier with the same surface area as claimed. In addition, even though Buck in view of Cai and Abe do not explicitly teach that the carrier is sintered, one of ordinary skill would have found the claimed sintered carrier obvious since sintering is a cost effective and common method to make a porous material.

Regarding claim 16, since Buck in view of Cai teach an electrically conductive carbonaceous material supported catalyst that is significantly similar to that of the instant invention(i.e. same catalyst support material, same catalyst, similar carrier surface area and pore size), one of ordinary skill in the art would have found it obvious that the catalyst amount of Buck in view of Cai would have also overlap the claimed catalyst amount, which establishes a prima facie case of obviousness.

Regarding claim 22, since Abe teaches that catalyst such as Pt and Co are functionally equivalent, one of ordinary skill in the art would have found it obvious to incorporate Co as taught by Abe into the Pt catalyst of Buck in view of Cai with expected success.

Art Unit: 1742

6. Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buck in view of Cai and further in view of Suenaga et al. US 2002/0177032 A1(Suenaga).

The teachings of Buck in view of Cai are discussed in paragraph 4 above. However, Buck in view of Cai do not explicitly each the claimed catalyst support pore size.

Suenaga teaches supporting catalysts, such as Pt, on conductive carbon fibers having a pore diameter of about 1nm to about 10 μ m (paragraphs [0054]-[0055]).

Regarding claim 12, it would have been obvious to one of ordinary skill in the art to have incorporated the pore diameter of about 1nm to about 10 μ m as taught by Suenaga into the carbonaceous support material of Buck in view of Cai in order to achieve good catalyst volume without experiencing reduced service efficiency as taught by Suenaga.

Regarding claim 24, Suenaga further teaches that the conductive carbon fiber supported catalyst can be used in a methanol steam reforming reaction(paragraph [0039]. Therefore, one of ordinary skill in the art would have found it obvious that the electrically conductive carbonaceous material supported catalyst as taught by Buck in view of Cai can also be used in a methanol steam reforming reaction with expected success.

7. Claims 1, 3, 5-9, 17, 22-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe US 6,641,795 B2(Abe) in view of Cai.

Abe teaches method to electrically heating a catalyst unit comprising a catalyst on a support that is electrically heatable(abstract). The catalyst is used in reformer reactions such as steam reforming reactions using methanol(col. 5 line 18 – col. 6 line 12).

However, Abe does not explicitly teach the support material is a carbonaceous material as claimed.

Cai teaches dispersing catalyst such as Pt, CuO and ZnO, on the surface of a catalyst carrier such as Al₂O₃ which is applied onto suitable support materials such as carbon fibers and carbon nanotubes(abstract, paragraphs [0011-0012, 0017-0018, 0059]).

Regarding claims 1 and 29, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the carbonaceous material such as carbon fiber and carbon nanotubes as taught by Cai as the catalyst support in the electrically heatable catalyst unit of Abe in order to produce a catalyst with better surface coating on the support material as taught by Cai(paragraph [0059]). In addition, it would have been obvious to one of ordinary skill in the art to have incorporated a mixture of carbon fibers and carbon nanotubes as suitable support material in the process as taught by Abe in view of Cai since Cai teaches that both carbon fiber and carbon nanotubes are suitable support materials for the catalysts such as Pt. It is also well settled that "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of

Art Unit: 1742

combining them flows logically from their having been individually taught in the prior art.”
In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See MPEP 2144.06.

Furthermore, since the catalyst of Abe in view of Cai can be used in chemical reactions such as a steam reforming reaction, Abe in view of Cai meet the intended use of “for conducting a chemical reaction in the presence of a catalyst”. In addition, the catalyst support of Abe in view of Cai(i.e. mixture of carbon fiber and carbon nanotubes) is electrically conductive and is electrically heated. Therefore, the examiner concludes that passing of current from the support to the catalyst to raise the temperature of the catalyst to effectively activating catalyst would have also taken place in the process of Abe in view of Cai.

Regarding claim 3, 5-7 and 22, Abe further teaches the catalyst may be Pd, Pt, Co, Ni, etc. The metal catalyst is loaded on a heat-resistant oxide such as Al₂O₃, SiO₂, TiO₂, ZrO₂, MgO, etc.(col. 12 lines 28-67).

Regarding claims 17 and 25, since the instant claims all depend on the independent claim 1, the examiner is taking the position that the carbon fiber containing carbonaceous catalyst support material as taught by Abe in view of Cai encompasses the claimed carbon fiber and the woven or nonwoven carbon fiber cloth or felt or plug. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed carbon fiber, the woven or nonwoven carbon fiber cloth or felt or plug from the carbon fiber and carbon nanotube containing carbonaceous support material disclosed by Abe in view of Cai would have been obvious to one of ordinary

Art Unit: 1742

skill in the art since Abe in view of Cai teach the same utility in their carbonaceous catalyst support material.

Regarding claims 8 and 9, Abe further teaches that the surface area of the catalyst carrier is in the range of 5 – 300 m²/g(col. 12 lines 47-61), which reads on the claimed surface area of about 1 – 1000 m²/g as recited in instant claim 9. Abe further teaches that a heater unit containing sintered ZnO₂ carried catalyst(col. 6, line 61 – col. 7 line 20). Even though Abe in view of Cai do not explicitly teach the claimed carrier pore diameter of about 1 to about 100Angstroms as recited in instant claim 8, the catalyst carrier of Abe in view of Cai inherently meets the claimed pore size since Abe in view of Cai teach the same catalyst carrier with the same surface area as claimed.

Regarding claim 23, Abe further discloses that the steam reforming reaction temperature is 500°C(col. 5 line 67), which inherently meets the claim limitation of electrically heating up the catalyst for about 50 – 1200 degree C, since the catalyst would also needed to be heat up to the reaction temperature.

Regarding claim 24, Abe further teaches the claimed steam reforming reaction using methanol(col. 5 line 18 – col. 6 lines 12).

Regarding claim 26, Abe further teaches that the catalyst unit having electrodes on each side of the catalyst unit(col. 9 lines 21-33). Therefore, the carbonaceous material supported catalyst in a catalyst unit between two electrodes as taught by Abe in view of Cai meets the limitations of instant claim 26.

Art Unit: 1742

8. Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe in view of Cai, and further in view of Parmentier et al. US 6,383,972 B1 (Parmentier).

The teachings of Abe and Cai are discussed in paragraph 7 above.

However, Abe in view of Cai do not explicitly teach the carbon fiber in the carbonaceous catalyst support is woven/unwoven carbon fiber cloth or felt as claimed.

Parmentier teaches using activated carbon fiber fabric as support for catalyst such as Pt, Pd, Ni, etc.(abstract, col. 1 line 49 – col. 2 line 53).

Regarding claim 17, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the activated carbon fiber fabric of Parmentier to substitute the carbon fiber in the carbonaceous catalyst support of Abe in view of Cai since Parmentier teaches that the activated carbon fabric(i.e. woven carbon fiber cloth) is a functional equivalent catalyst support for the catalyst of Abe in view of Cai.

Regarding claim 12, Parmentier further teaches that the carbon fibers have a mean pore size of 0.3nm – 3nm with a total porosity of 30-50% (col. 2 lines 32-36). Since Abe teaches that the support total porosity of 50% or more, the catalyst support of Abe in view of Cai and Parmentier inherently has a total porosity of 50% or more, which means that the pore size of the catalyst support of Abe in view of Cai and Parmentier would be 3nm or more, which overlaps the claimed pore diameter of about 0.005 to about 0.2 micrometer as recited in instant claim 12. Therefore, a prima facie case of obviousness exists. The selection of the claimed pore diameter range from the pore

Art Unit: 1742

size range of Abe in view of Cai and Parmentier would have been obvious to one of ordinary skill in the art since Abe in view of Cai and Parmentier teach the same utility in their disclosed pore size range.

Regarding claims 13-15, since heat conductivity, electrical resistivity and dielectric constant are inherent properties of the catalyst support and Abe in view of Cai and Parmentier disclose a significantly similar catalyst support as the instant invention (i.e. same material and overlapping pore size), one of ordinary skill in the art would have expected the properties, such as heat conductivity, electrical resistivity and dielectric constant, to be the same as claimed. Therefore, a prima facie case of obviousness exists. The selection of claimed heat conductivity, electrical resistivity and dielectric constant ranges from the disclosed ranges of Abe in view of Cai and Parmentier would have been obvious to one of ordinary skill in the art since Abe in view of Cai and Parmentier teach the same utilities in their heat conductivity, electrical resistivity and dielectric constant ranges.

Regarding claim 16, since Abe in view of Cai and Parmentier teach a support for metal catalyst loaded in a carrier that is significantly similar to that of the instant invention (i.e. same material for the support, the catalyst and the catalyst carrier, similar carrier pore size, surface area, similar support pore size and quality), the amount of catalyst present on the support would have inherently overlap the claimed amount of about 1 microgram to 10 gram per cm^3 . Therefore, a prima facie case of obviousness exists. The selection of the claimed amount of catalyst in the support from the amount disclosed by Abe in view of Cai and Parmentier would have been obvious to one of

Art Unit: 1742

ordinary skill in the art since Abe in view of Cai and Parmentier teach the same utility in their catalyst amount range.

Regarding claim 18, Parmentier further teaches that the fabric is shaped by rolling after the catalyst has been uniformly distributed through out the support(col. 3 lines 12-19). Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the technique rolling of the catalyst support as taught of Parmentier into the process of Abe in view of Cai in order to impart cohesion to the shaped support as taught by Parmentier(col. 3 lines 12-19). In addition, Abe further teaches that the catalyst is disposed in the flow path of a reactant fluid during the reaction(col. 6 lines 4-8). Therefore, Abe in view of Cai and Parmentier meet the limitation of instant claim 18.

9. Claim 1, 5, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Affleck et al US 4,868,841(Affleck) in view of Cai.

Affleck teaches a directly heated ceramic catalytic support that is heat and electrically conductive(abstract).

However, Affleck does not explicitly teach that the claimed catalyst support being an electrically conductive carbonaceous material as claimed.

Cai teaches dispersing catalyst such as Pt, CuO and ZnO, on the surface of a catalyst carrier such as Al₂O₃ which is applied onto suitable support materials such as carbon fibers and carbon nanotubes(abstract, paragraphs [0011-0012, 0017-0018, 0059]).

Regarding claims 1 and 29, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the carbonaceous

Art Unit: 1742

material such as carbon fiber and carbon nanotubes as taught by Cai as the catalyst support for the electrical heating of catalyst as taught by Affleck in order to produce catalyst with better surface coating on the support material as taught by Cai(paragraph [0059]). In addition, it would have been obvious to one of ordinary skill in the art to have incorporated a mixture of carbon fibers and carbon nanotubes as suitable support material in the process as taught by Affleck in view of Cai since Cai teaches that both carbon fiber and carbon nanotubes are suitable support materials for the catalysts such as Pt. It is also well settled that "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See MPEP 2144.06.

In addition, the catalyst support of Affleck in view of Cai is electrically conductive, which implies passing of current from the support to the catalyst as claimed. Furthermore, since Affleck in view of Cai teach the same electrically conductive carbonaceous material as catalyst support and applying an electric current to the catalyst support(i.e. via electrical heating), the claimed electric current resistively heating the catalyst to a temperature effective to activate the catalyst would also take place in the process of Affleck in view of Cai.

Regarding claim 5, Affleck further teaches that the desired catalyst is Pt(abstract, col. 2 lines 20-64).

Regarding claim 23, Affleck further teaches that the catalyst support is heated to about 350°C by an electrical current(col. 3 lines 26-62, col. 4 lines 15-20, col. 5 lines 5-50), which read on the claimed catalyst temperature increase of about 50 – about 1200°C.

Response to Arguments

10. Applicant's arguments filed on 27 December 2006 have been considered, but are moot in view of new grounds of rejection above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1742


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248.

The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ


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